

Technical Assistance Services for Communities

Potential Economic Impacts of the Proposed Cleanup for the Lower Passaic River's Lower Eight Miles July 2014

The Passaic River Community Advisory Group (CAG) asked the Technical Assistance Services for Communities (TASC) contractor to provide information about the potential economic impacts of the proposed cleanup for the lower eight miles of the Lower Passaic River. Skeo Solutions applied a regional economic impact model and researched readily available information for similar dredging projects.

The TASC contract provides EPA-funded technical support for communities living near hazardous waste sites. The contents of this document do not necessarily reflect the policies, actions or positions of EPA.

Regional Economic Impact Model

TASC used a regional economic impact model to

Economics Questions from the Passaic CAG

- Is it possible do a simple assessment of economic benefits from the cleanup in terms of possible employment based on similar scale projects – types of jobs, numbers of jobs, other types of indirect economic benefits such as local procurement?
- What are the likely negative economic impacts during construction from river closures, traffic impacts, etc.?
- Is it possible to do some basic research on best practices to maximize the economic benefits over the course of the project?

estimate the impact of the cleanup project on the economy of the four-county region around the lower eight miles of the Passaic River. The CAG defined the economic region of interest as including Essex, Hudson, Bergen and Passaic counties. TASC used the RIMS II model (Regional Input-Output Modeling System) Type II multipliers, developed by the U.S. Department of Commerce's Bureau of Economic Analysis. The RIMS II multipliers show how local demand affects total gross output, earnings, and employment in the region. TASC modeled this analysis on the Hudson River economic impact analysis done by EPA in 2002, in response to public comments that EPA received about the proposed cleanup for the Hudson River. 1

EPA estimates that its preferred cleanup option for the Passaic River's lower eight miles (capping + off-site disposal) would cost \$1.73 billion (Proposed Plan, p. 23). For the Hudson River economic impact analysis, EPA analyzed the predicted project costs line by line to estimate which expenditures would occur within the local

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¹ EPA and U.S. Army Corps of Engineers. Responsiveness Summary, Hudson River PCBs Site Record of Decision. January 2002. http://www.epa.gov/hudson/Resp Summ Files/rsbk 2.pdf, page 356.

area; EPA estimated that 38 percent of the total expenditures would occur within the local area. Due to timing constraints, this TASC analysis could not conduct such a line-by-line analysis of the Passaic lower eight miles cleanup cost estimate. Therefore, this analysis adopts the 38 percent value that EPA calculated for the Hudson River cleanup. Of the \$1.73 billion total estimated cost for EPA's preferred cleanup option for the Passaic River's lower eight miles, this analysis estimates that \$657 million will be spent locally (38 percent).

Next, this analysis allocated the estimated \$657 million in local spending to various industries, based on the proportions estimated by EPA for the Hudson River cleanup. Table 1 presents the estimated local spending, by industry. This is "direct spending," money spent by the parties conducting the cleanup. The RIMS II model uses these numbers as inputs to estimate the amount of indirect and induced spending and employment that would be spurred by the direct spending.

Table 1. Estimated Direct Local Spending for Passaic River Lower Eight Miles^a

Industry	Percentage of Total Project Cost ^b	Dollars Expended
Construction	38.3%	\$252 million
Rail transportation	24.5%	\$161 million
Water transportation	10.9%	\$72 million
Professional, scientific and technical services	26.3%	\$173 million
Total Direct Local Spending:	100%	\$657 million

Notes:

a) Spending is based on \$1.73 billion total estimated cost for EPA's preferred cleanup option.

b) Due to rounding, numbers in this table may not sum exactly.

Table 2 below presents the estimated total economic output that would occur in the four-county region as a result of the spending on EPA's proposed cleanup using the RIMS II model. The \$1.1 billion in total output includes the \$657 million in local spending on the cleanup. In other words, the \$657 million in local spending on the cleanup is expected to create an additional \$472 million in economic output in the four-county region, as the original dollars circulate in the local economy.

b) Percentages of total project cost are based on EPA's 2002 estimates for the Hudson River project. See http://www.epa.gov/hudson/Resp_Summ_Files/rsbk3_02.pdf, Table 313617-1, page 189.

² EPA and U.S. Army Corps of Engineers. Responsiveness Summary, Hudson River PCBs Site Record of Decision. January 2002. http://www.epa.gov/hudson/Resp_Summ_Files/rsbk_2.pdf, page 357.

Table 2. Estimated Output Spurred by the Proposed Cleanup

Industry	Output (millions)	Percent of Total
Transportation and warehousing	\$260	23%
Construction	\$259	23%
Professional, scientific and technical services	\$227	20%
Finance and insurance	\$75	7%
Real estate and rental and leasing	\$62	5%
Manufacturing	\$47	4%
Retail trade	\$33	3%
Health care and social assistance	\$33	3%
Wholesale trade	\$28	2%
Information	\$28	2%
Administrative and waste management services	\$24	2%
Other services	\$17	2%
All other industries	\$34	3%
Totals:	\$1,129	100%

Notes

The RIMS II model estimates that the \$657 million in local spending on the proposed cleanup will create \$234 million in earnings and 4,615 jobs in the four-county region. Tables 3 and 4 below break down these estimates by industry. Note that the RIMS II model does not have a time component, so the length of time that these jobs would exist is not predicted by the model.

a) Output includes the \$657 million in estimated direct local spending on cleanup.

b) Due to rounding, numbers in this table may not sum exactly.

Table 3. Estimated Earnings Spurred by the Cleanup

Industry	Earnings (millions)	Percent of Total
Construction	\$72	31%
Professional, scientific and technical services	\$69	29%
Transportation and warehousing	\$22	9%
Health care and social assistance	\$12	5%
Finance and insurance	\$9	4%
Retail trade	\$8	4%
Administrative and waste management services	\$8	3%
Manufacturing	\$7	3%
Wholesale trade	\$6	3%
Real estate and rental and leasing	\$5	2%
Other services	\$5	2%
Information	\$3	1%
Food services and drinking places	\$3	1%
All other industries	\$6	2%
Totals:	\$234	100%

a) Due to rounding, numbers in this table may not sum exactly.

Table 4. Estimated Employment Spurred by the Cleanup

Industry	Jobs	Percent of Total
Construction	1,379	30%
Professional, scientific and technical	994	22%
services		
Transportation and warehousing	339	7%
Retail trade	302	7%
Administrative and waste management	266	6%
services		
Real estate and rental and leasing	259	6%
Health care and social assistance	254	6%
Finance and insurance	149	3%
Food services and drinking places	142	3%
Other services	128	3%
Manufacturing	116	3%
Wholesale trade	85	2%
Educational services	51	1%
Arts, entertainment, and recreation	46	1%
All other industries	104	2%
Totals:	4,615	100%
Note:		

a) Due to rounding, numbers in this table may not sum exactly.

As another estimate of the number of jobs that will be created by the lower eight miles cleanup, TASC used a rough calculation developed by EPA Region 2 (personal communication with EPA headquarters,). Based on the number of employees and the fiscal year 2010 spending at 15 EPA-financed cleanup sites in Region 2, EPA calculated a ratio of "\$100K per job as a fairly conservative figure for making projected estimates." EPA estimates that its proposed cleanup plan would cost \$1.73 billion over five years, an average of \$346 million per year. Dividing this annual spending by EPA's assumed ratio of \$100,000 per job yields an **estimate of 3,460 jobs for five years**.

Economic Impacts at Similar Projects

TASC researched readily available information about the economic impacts of dredging projects similar to the proposed lower eight miles cleanup. TASC focused on three projects: Hudson River, Fox River and New Bedford Harbor. Most of the available economic information is about the Hudson River cleanup.

Hudson River Cleanup Project

Although there are important differences, the Hudson dredging project and the proposed Passaic lower eight miles cleanup project share some broad similarities. For both projects, barges take dredged sediment to a processing facility, and then trains take the processed sediment for off-site disposal. The cost of the Hudson River project is about \$2 billion, similar to EPA's projection for the lower eight miles proposed cleanup (\$1.73 billion).

According to a 2013 report by GE, the Hudson River cleanup project has "more than 350 employees, contractors, and consultants engaged full-time." A 2012 EPA news release stated that "the dredging project also created 500 jobs and additional economic benefits for the area."

A 2009 article in the Albany Business Review highlighted some of the local economic benefits during the **pre-dredging phase** of the cleanup: ⁵

- More than 100 local businesses hired, for example:
 - o Construction companies to do site preparation work
 - o Engineering companies
 - o Plumbing shops
 - o Fuel distributors
- Apartment rentals for out-of-town workers

A local construction company (D.A. Collins of Wilton, New York) did a large part of the Hudson River predredging preparation work. ⁶ D.A. Collins prepared the sites for the sediment processing facility and the railyard, widened the Champlain Canal, constructed a wharf for unloading sediment, and constructed another wharf for use as a work platform. The work totaled 300,000 man-hours, which is equal to 144 full-time jobs lasting one year. ⁷

³ GE. Hudson River Project Report. December 2013. http://www.hudsondredging.com/wp-content/uploads/2013/12/HudsonRIverProjectReport.pdf, page 2.

⁴ EPA. News Release. November 13, 2012.

 $[\]underline{http://yosemite.epa.gov/opa/admpress.nsf/652d9edd5cf71a2585257359003f5343/edb2f06ca54352a685257ab50071647b!OpenDocument.}$

⁵ Cooper, R. "Environment: GE's burden is contractors' opportunity." Albany Business Review. April 9, 2009. http://www.bizjournals.com/albany/stories/2009/04/13/focus1.html?page=all.

⁶ Cooper, R. "Environment: GE's burden is contractors' opportunity." Albany Business Review. April 9, 2009. http://www.bizjournals.com/albany/stories/2009/04/13/focus1.html?page=all.

⁷ D.A. Collins Companies. Hudson River Sediment Remediation Phase 1 Project. http://www.dacollins.com/projects/?proID=74.

RailWorks Track Services Inc., a subsidiary of RailWorks Corp. of New York City, constructed the Hudson rail yard with seven miles of new tracks. ⁸ The RailWorks track services field offices nearest to the Passaic River are in Sewell, New Jersey, and Westfield, Massachusetts. ⁹

Dredging of the Hudson River began in 2009 and is expected to be completed in 2015, followed by a season of habitat restoration in 2016. ¹⁰ Some of the local economic impacts during the **dredging phase** of the Hudson River cleanup include:

- "Round-the-clock movement of at least 70 vessels, including 200-foot-long barges that have so far traveled over 17,000 miles and tugboats that have logged over 160,000 hours, and countless crewing and transport vessels; ...
- Transporting the processed dredge spoils to federally permitted disposal sites using a dedicated fleet of more than 500 rail cars;
- Planting more than 600,000 native plants to restore aquatic river-bottom vegetation in areas that have been dredged." ¹¹
- Three to four dredges operate simultaneously. 12
- 17 tugboat operators. 13

Lower Fox River Cleanup Project

The Fox River cleanup project entails dredging and capping PCB-contaminated sediments from a 13-mile stretch of the Fox River near Green Bay, Wisconsin. Sediment is dredged using hydraulic dredges, sent via pipeline to a processing facility for dewatering, and then trucked to a landfill. The project began in 2009; the 2014 cleanup season is underway. The cleanup is estimated to cost more than \$1 billion; costs during 2009-2011 were \$315 million. ¹⁴ From the start of the project through late June 2014, workers have spent 1,476,100 hours on the project; ¹⁵ this is equal to 142 full-time jobs lasting five years.

During the pre-cleanup preparation phase, Tetra Tech, the prime contractor, focused on hiring local companies, and selected local, regional and state companies for \$200 million in contracts. ¹⁶ Local companies designed and built the sediment processing facility. The facility was designed by AECOM / Somerville Inc. of Green Bay, Wisconsin. The general contractor for the construction of the facility was Miron Construction of Neenah, Wisconsin. ¹⁷ Sources differ about how many people worked on building the sediment processing facility in

⁸ Cooper, R. "Environment: GE's burden is contractors' opportunity." Albany Business Review. April 9, 2009. http://www.biziournals.com/albany/stories/2009/04/13/focus1.html?page=all.

⁹ RailWorks. Track Construction, Maintenance and Rehabilitation. http://www.railworks.com/sites/default/files/Track -Brochure-ipad 0.pdf.

¹⁰ GE. Hudson River Project Report. December 2013. http://www.hudsondredging.com/w_p-content/uploads/2013/12/HudsonRIverProjectReport.pdf.

¹¹ GE. Hudson River Project Report. December 2013. http://www.hudsondredging.com/wp-content/uploads/2013/12/HudsonRIverProjectReport.pdf.

¹² GE. PCB Cleanup: How Dredging Is Performed. http://www.hudsondredging.com/hudson-pcb-cleanup-how-dredging-is-performed.

Post, P. Hudson River Dredging project from the perspective of a worker on the front lines. Saratogian News. August 16, 2013. http://www.saratogian.com/general-news/20130816/hudson-river-dredging-project-from-the-perspective-of-a-worker-on-the-front-lines-with-video-and-photos.

¹⁴ Behm, D. Judge upholds costly Fox River PCB cleanup plan. Milwaukee Wisconsin Journal Sentinel. November 22, 2012. http://www.jsonline.com/news/wisconsin/judge -upholds-costly-fox-river-cleanup-plan-937oik8-180535401.html.

¹⁵ Fox River Cleanup Group. Project Update. 2014. http://foxrivercleanup.com/project- overview/project-update.

¹⁶ Walter, T. PCB removal dredges up work for local companies. Green Bay Press Gazette. December 1, 2008. http://foxrivercleanup.com/bmos -resources/greenbaypressgazette120108.pdf.

¹⁷ ENR Midwest. Tetra Tech Fox River Sediment Processing Facility. December 2009. http://midwest.construction.com/midwest_construction_projects/20_09/1201_tetratechfoxriver.asp_.

2008 and 2009, ranging from a low of 126 workers to over 300 workers. ¹⁸ More than 20 local and regional companies worked on the construction of the processing facility, including construction and trucking companies, mechanical and electrical contractors, and concrete, asphalt and fuel suppliers. ¹⁹

The dredging and capping are being done by a company based in western Wisconsin, J.J. Brennan of La Crosse. ²⁰ The sediment processing facility was estimated to require 85 to 100 workers during operation. ²¹ A fleet of 20 to 24 trucks hauls dewatered sediment from the processing facility to off-site landfills. ²²

New Bedford Harbor Cleanup Project

Since 2004, EPA has been hydraulically dredging sediment from the New Bedford Harbor. The sediment is sent via pipeline to a dewatering facility, and is then transported via rail to an off-site landfill. In 2012, EPA reached a settlement with the responsible party to provide \$366 million to pay for the cleanup. ²³ EPA believes this will cover more than 90 percent of the future cleanup costs. ²⁴

Most of the cleanup workers are local, both from the New Bedford area and southeastern Massachusetts. ²⁵

EPA is now building a confined aquatic disposal (CAD) cell for sediment disposal, to replace landfill disposal. ²⁶ A nearby company, Cashman Dredging & Marine Contracting, was awarded a \$6 million contract to build the CAD cell. ²⁷

Onondaga Lake, New York

The cleanup of Onondaga Lake in New York provided has more than 500 jobs for central New York scientists, engineers and skilled craft laborers. The project includes dredging 2 million cubic yards of material from Onondaga Lake. Dredging and capping began in the summer of 2012 and is projected to be completed in 2016. See the websites http://www.lakecleanup.com/documents/2012Annua IReport/document.pdf and http://www.dec.ny.gov/docs/regions-pdf/faqol612.pdf for more information.

¹⁸ Tetra Tech. Fox River Sediment Remediation, Wisconsin. http://www.tetratech.com/projects/fox-river-sediment-remediation-wisconsin.html;

Walter, T. PCB removal dredges up work for local companies. Green Bay Press Gazette. December 1, 2008. http://foxrivercleanup.com/bmos -resources/greenbaypressgazette1 20108.pdf;

Maier, H. Large presses for Fox dredging effort being installed. The Business News. November 24, 2008. http://foxrivercleanup.com/bmos -resources/thebusinessnews112408.pdf;

Maier, H. Work begins on Fox River dredging project. The Business News. October 27, 2008. http://foxrivercleanup.com/bmos-resources/thebusinessnews102708.pdf.

¹⁹ Walter, T. PCB removal dredges up work for local companies. Green Bay Press Gazette. December 1, 2008. http://foxrivercleanup.com/bmos -resources/greenbaypressgazette120108.pdf;

Maier, H. Large presses for Fox dredging effort being installed. The Business News. November 24, 2008. http://foxrivercleanup.com/bmos -resources/thebusinessnews112408.pdf.

²⁰ Fox River Cleanup Group. Key Players. http://foxrivercleanup.com/key-players.

²¹ Walter, T. PCB removal dredges up work for local companies. Green Bay Press Gazette. December 1, 2008. http://foxrivercleanup.com/bmos -resources/greenbaypressgazette12 0108.pdf.

²² Michel, R. Fox dredging beats goals. Insight Magazine. December 2010. http://foxrivercleanup.com/bmos-resources/insightmagazine1210.pdf.

²³ U.S. Department of Justice. News Release. October 10, 2012. http://www.justice.gov/opa/pr/2012/October/12 -enrd-1219.html.

Daley, B. Groups question New Bedford harbor cleanup deal. Boston Globe. October 16, 2012.
http://www.bostonglobe.com/metro/2012/10/15/environmental-groups-warn-superfund-settlement-may-not-enough-clean-new-bedford-harbor/L3Im1XZSKDoJIGQgngw9WJ/story.html.

²⁵ EPA. New Bedford Harbor Cleanup. "See How the Cleanup Works" video. http://www2.epa.gov/new-bedford-harbor/harbor-cleanup.

²⁶ EPA. New Bedford Harbor Cleanup Plans, Technical Documents and Environmental Data. http://www2.epa.gov/new-bedford-harbor-cleanup-plans-technical-documents-and-environmental-data#CurrentWork.

²⁷ Cashman Dredging. Cashman Dredging Awarded New Bedford Harbor, Lower Harbor CAD Cell Project. July 30, 2013. http://www.cashmandredging.com/news -details.php?ID=273.

Negative Economic Impacts During Construction

EPA's 2002 socioeconomic impact analysis prior to the Hudson River cleanup project contains some observations that are also applicable to the proposed Passaic lower eight miles project:

- "The short-term impacts of a temporary dredging operation are not considered sufficient to generate discernable property-value losses ... The cleanup of PCBs offers the prospect of increasing property values both in the Upper Hudson River valley and along the entire river."
- "In light of the operational characteristics of the proposed PCB remediation, with active dredging proximate to any particular location for only a matter of weeks, it is not likely that properties along the river will suffer any significant or permanent loss of value."
- "Property in close proximity to the sediment processing/transfer facilities may be subject to some depreciation in value."
- "The six-year design life of these sediment processing/transfer facilities places their effects within a relatively short-term horizon that will generate less significant impacts on property values and is more likely to see a quick rebound from any potential for adverse impacts."

EPA's preferred cleanup plan for the Passaic lower eight miles will require a sediment processing facility similar to the one constructed for the Hudson River cleanup. Like the proposed Passaic facility, the Hudson facility dewaters dredged sediment and loads it onto railcars for off-site disposal. The Hudson facility operates 24 hours per day, six days per week, six months per year, and will be operational for about seven years (2009 to 2015), which is similar to the schedule proposed for the Passaic sediment processing facility. EPA's 2002 socioeconomic analysis estimated that the Hudson processing facility could reduce nearby property values by 2 to 8 percent, with the negative effect declining with distance.

The lower eight miles of the Passaic River has 14 bridges in use (seven railroad bridges and six car/truck bridges). ²⁸ The cleanup project will likely require occasional road closures in order to open the bridges so that boats and other equipment can pass. Cars and trucks will be able to use alternate bridges in order to detour around any temporarily closed bridges.

²⁸ U.S. Army Corps of Engineers. Lower Passaic River Commercial Navigation Analysis. July 2010. http://passaic.sharepointspace.com/Public%20Documents/2010-07-29%20USACE%20Lower%20Passaic%20River%20Commercial%20Navigation%2 0Analysis.pdf, Table 2.

Best Practices to Maximize Economic Benefits

Local Procurement

For the dredging phase of the Hudson River project, the main contractors hired by GE are based outside the area. However, these contractors hire local businesses, subcontractors, vendors and service providers. ²⁹ GE set up a website called Hudsonworks Marketplace (http://www.hudsonworks.net) to identify local businesses interested in participating in the cleanup. According to the website, more than 500 local businesses have registered, and "more than 280 Capital Region businesses, vendors, subcontractors and service providers have assisted on the project." The website states that "all qualified businesses are considered regardless of their size." The website provides a list of services and materials that GE may need for the cleanup project: ³⁰

Services

- o Concrete Formwork
- o Concrete Rebar and Finishing
- o Snow Removal
- o Construction of Pre-engineered Structures
- o Electrical
- o Fencing
- o Heating/AC
- Janitorial
- o Local Accommodations
- o Paving
- o Plumbing
- o Rental of Roll-off Containers
- o Road Maintenance
- Sanitary Services
- Security
- Steel Fabrication
- o Temporary Storage
- o Trash Removal

Materials

- Asphalt
- o Clean Fill
- o Concrete
- o Gravel
- o Railroad Ballast
- Construction Equipment Rental and Supplies
 - o Barricades
 - o Bottled Gas Service
 - o Hardware and Tools
 - On- and off-road dump trucks

²⁹ Environmental Protection. Cashman Dredging & Marine to Work on Upper Hudson River Project. April 8, 2011. http://eponline.com/articles/2011/04/08/cashman -dredging-marine-to-work-on-upper-hudson-river-project.aspx?admgarea=ht.land.remediation .

³⁰ GE. HudsonWorks Marketplace. http://www.hudsonworks.net/Services.

- Scaffolding
- Welding Supplies
- o "Yellow Iron" equipment
- Equipment and Vehicle Maintenance Supplies
 - o Oil
 - o Grease
 - Hoses and Fittings
- Health and Safety Supplies
 - o Boots
 - o Coveralls
 - Hard Hats and Gloves
 - Tyvek
- Other Supplies
 - o Fuel
 - Construction Water
 - o Plumbing Supplies including Piping, Valves and Fittings

The Passaic CAG may want to request that EPA encourage local contracting, hiring and procurement during the lower eight miles cleanup project. As part of that effort, the Passaic CAG may want to request that EPA or the CPG set up a website similar to the Hudsonworks Marketplace (http://www.hudsonworks.net) to encourage local contracting and procurement for the project.

Minimizing Negative Impacts from the Processing Facility

EPA can minimize the negative impacts of the sediment processing facility by siting the facility away from sensitive areas such as residential areas, schools and recreational areas. For the Hudson River project, the sediment processing facility was built on a 110-acre site on the outskirts of the town of Fort Edward, between the Champlain Canal and an existing rail line. The Fox River project, although the processing facility is within a third of a mile of residential areas, the facility is indoors, minimizing the negative effects on residents. The New Bedford Harbor desanding facility is next to a park; the dewatering facility is about a quarter-mile from a park and neighborhoods in the town of New Bedford. Both of these facilities are indoors, minimizing the negative effects on residents.

The lower eight miles Focused Feasibility Study states that "the optimum location for an upland processing facility would be within the first reach (RM0 to RM4.6) [downstream of the Jackson Street bridge] to minimize the impact of river constraints" (App. F, p. 2-12). 34 Riverside areas in that stretch of the Passaic are primarily industrial, so it appears likely that EPA may be able to locate a site for the processing facility that is sufficiently far from sensitive areas. The Passaic CAG may want to request that EPA build the sediment processing facility within a building that is designed to minimize impacts (such as noise, vibration, dust and odors) on nearby residents.

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³¹ GE. PCB Cleanup: How Dredging Is Performed. http://www.hudsond_redging.com/hudson-pcb-cleanup-how-dredging-is-performed.

³² Fox River Cleanup Group. Green Bay Processing Facility. http://foxrivercleanup.com/project-overview/facilities/green-bay-processing-facility;

Fox River Cleanup Group. Facilities. http://foxrivercleanup.com/project -overview/facilities.

³³ EPA. New Bedford Harbor Superfund Cleanup Areas Remediated through 2011 Per 1998 ROD. July 2, 2012. http://www2.epa.gov/sites/production/files/documents/507268.pdf.

³⁴ RM = river mile, measured from the mouth of the river at Newark Bay.

Job Training

<u>The Passaic CAG may want to ask EPA about opportunities for training local residents for cleanup jobs.</u> In 2012, EPA provided job training to 15 people living near the Diamond Alkali Superfund site, through the Superfund Job Training Initiative. For more information about the Superfund Job Training Initiative and the 2012 training, see http://www.epa.gov/superfund/community/sfjti_and http://www.epa.gov/superfund/community/sfjti/pdfs/diamond- factsheet.pdf.